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Forest Service

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DRAFT Environmental Assessment
Young Mike Sherman Project

Pleasant Hill Ranger District, Ozark – St. Francis National Forests
Johnson County, Arkansas

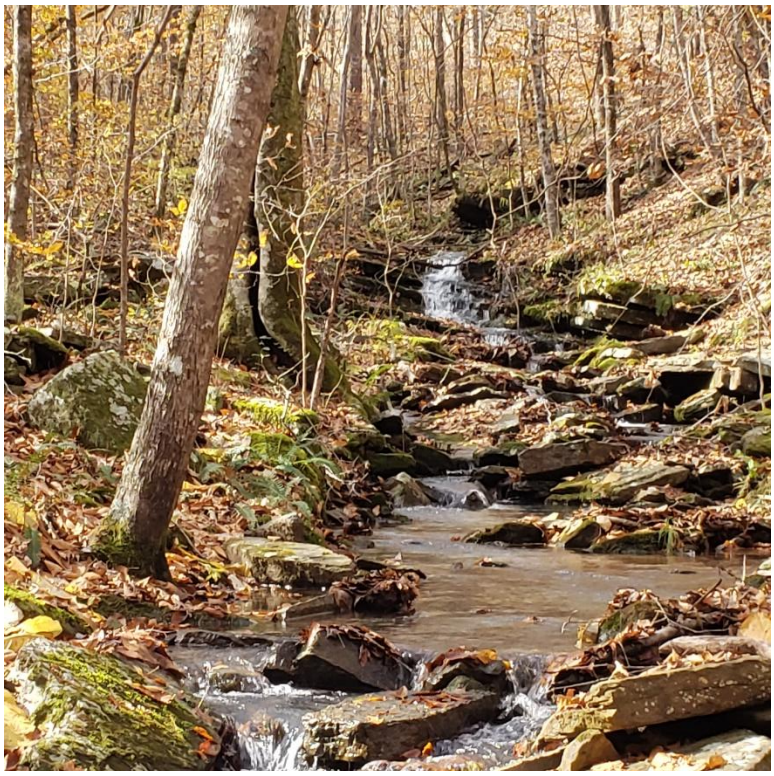

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ATTACHMENTS

1) Vicinity Map
2) Youngs Point Proposed Action Map
3) Mikles Proposed Action Map
4) Coon Hollow Proposed Action Map

Chapter 1 – Introduction

Background

The Pleasant Hill Ranger District's "order of entry" led to this project proposal. The Revised Land and Resource Management Plan (Forest Plan) guides activities for a 10- to 15-year planning period and directs that all land types be inventoried within that timeframe. The Young Mike Sherman project consists of three geographically separate areas, which are named Youngs Point, Mikles and Coon Hollow. The Young Mike Sherman project area was due for inventory, treatment, and monitoring. Foremost, this analysis addresses forest health and diversity, as identified by the interdisciplinary team (IDT) members. This source document is on file at the Pleasant Hill Ranger District Office.

Summary

The Pleasant Hill Ranger District will implement forest management activities to improve ecosystem health, manage vegetation to improve forest stands, enhance wildlife habitat, and improve recreational opportunities in the Young Mike Sherman project area of the Ozark-St. Francis National Forests (OSFNFs) located in Johnson County, Arkansas. These actions will include enhancing wildlife and fish habitat; thinning timber for biodiversity, forest health, and visual quality; decommissioning roads (some by gating) while improving others; and reducing the build-up of hazardous fuels through prescribed burning.

Location of Young Mike Sherman Project Area

The project area of Young Mike Sherman is in Johnson County, Arkansas. Please see the enclosed map for a better description of the project's location where communities, roads and other landmarks can be identified. The project area encompasses approximately 23,680 total acres; 16,407 of National Forest land and 7,273 acres of private land. The Young Mike Sherman project includes three separate project areas with the following compartments: 345, 373, 372, 378, 374, 375, 376, 377, 353, 354, 358, 364, 359, 401, 400, 338, and 339. The legal description of Young Mike Sherman project area is T11N R22W Sections: 3, 4, 5, 6, 7, 8, 9, 10, 11, 19, 20, 21, 28, 29, 30; T11N R23W Sections: 4, 5, 6, 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33, 34; T11N R24W Sections: 13, 24, 25, 35, 36; T12N R25W Sections: 23, 24, 25, 26, 35, 36; T11N R25W Sections: 1, 2, 11, 12, 13; T12N R24W Sections: 32, 33; T11N R24W Sections: 4, 5, 6, 7, 8, 9, 17, 18.

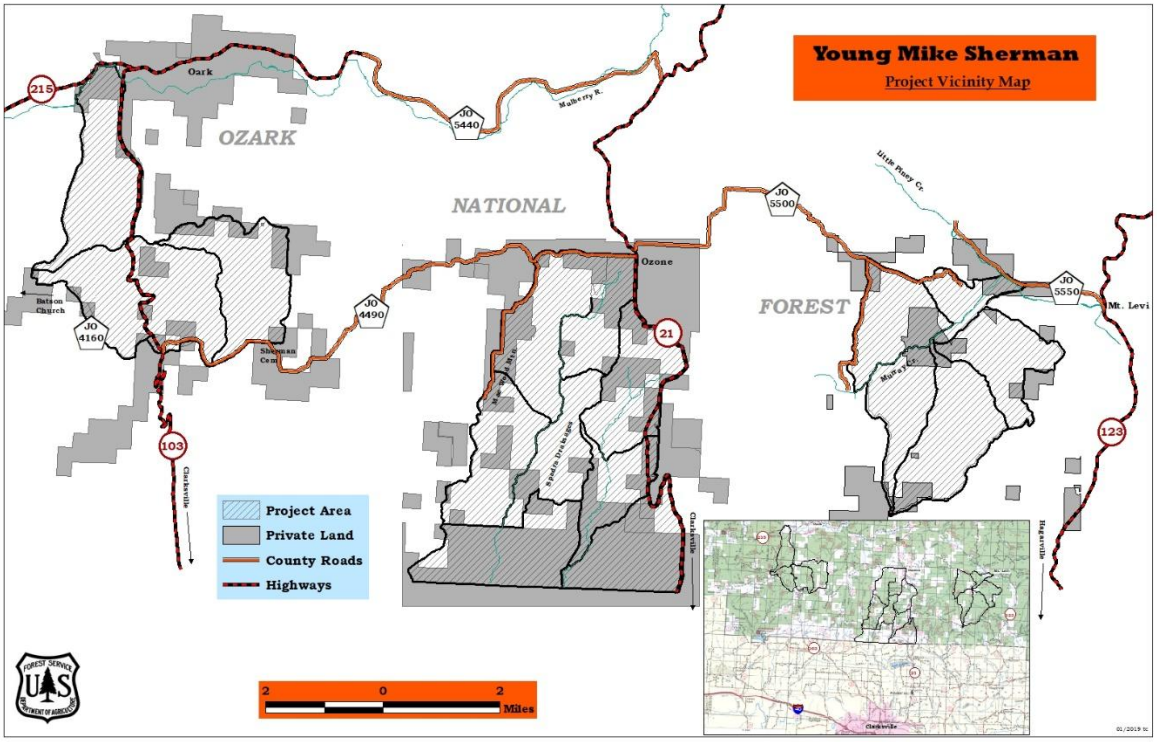

Figure 1. Vicinity Map

Management Areas

The differences between current and desired conditions illustrate the need for the proposed management activities. The Forest Plan for the Ozark-St. Francis National Forests describes Desired Conditions for the Management Areas (MAs) and the ecological systems that occur within these MAs. The Young Mike Sherman project falls within the following MAs: Scenic Byway Corridors (1.H), Pine Woodland (3.A), Oak Woodland (3.B), Mixed Forest (3.C), Oak Decline Restoration Area (3.D), and Riparian Corridors (3.I).

Purpose and Need

The purpose and need for this project would follow the guidelines of the designated management areas recognized within the Young Mike Sherman Project according to the Forest Plan for the OSFNFs.

The purpose of this initiative is to:

1. Move forest conditions toward the desired future conditions described in the Forest Plan. (http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsm8_042809.pdf)

In doing so, the Forest Service would restore ecosystem health and sustainable conditions. The following management prescriptions are needed and would be implemented within the Young Mike Sherman Project:

Ecosystem Restoration and Promoting Sustainable Ecosystems

The project area was historically subject to a more frequent regime of vegetation disturbance from anthropogenic fire. The OSFNFs have study sites in which frequent fire return intervals have been documented. Mean fire-return interval for the period of 1680-1820 ranged from 4.6 to 16 years; for the period of 1821-1880, it ranged from 2 to 3.1 years; and for the period of 1881-1920, it ranged from 1.4 to 5 years. From 1921-2000, mean fire-return interval for these study sites ranged from 62-80 years (Guyette and Spetich, 2003). Anthropogenic fire is documented to have played a major role in shaping ecosystem structure in the Ozark Highlands. Documented presence of native peoples in the area prior to the earliest fire scars recorded in this study point to a fire regime with return intervals similar to that documented for the period of 1680-1820. Frequent fire in forest/woodland ecosystems would invariably have produced open, less dense stands with a higher proportion of vegetation adapted to fire. Displacement of anthropogenic fire, creation of barriers to fire such as roads, and a long-standing policy of fire suppression have led to current forest health problems associated with abnormally dense forest conditions and unsustainable ecosystems.

General guidance in the 2005 Forest Plan guides the Forest Service to "Respond to land, resource, social and economic changes." Forest health and insect epidemics have become of paramount importance on the OSFNFs within the past few years. A red oak borer epidemic occurred with affected acreage going from 19,000 acres in 1999 to around 300,000 acres in 2001. The basic reason for this epidemic can be attributed to excessive forest density, resulting in stressed trees. Preliminary field investigations indicate that the red oak component had been reduced by as much as 85% within the affected areas. The Pleasant Hill Ranger District was the hardest hit area of the Forests. It is where the epidemic first started, and where evidence of the epidemic still exists. Preventive action is limited, but it is thought the best hope lies in regeneration and thinning (harvest & salvage). This will accomplish two objectives: (1) reduce inter-tree competition, which will relieve the water stress on the remaining trees and help them repel some of the borers, and (2) enable the trees that are harvested to begin stump sprouting, which will help to provide a source of young oaks for the future.

Oak decline has been diagnosed as far back as the late 1980's (Evaluation of Oak Decline Areas in the South: Protection Report R8-PR 17 September 1989). Oak decline is a complex syndrome with multi-factor causal agents that lead to dieback symptomologies and mortality. The key symptom characterizing oak decline is progressive crown dieback, followed by mortality, which may take a period of years. Oak decline results from tree stressors that have: (1) long-term factors such as adverse climatic trends, poor site conditions, tree age or genetics; (2) short-term factors like drought, late spring frost/freeze, insect defoliation, or discrete air pollution events; and (3) long-term contributing factors such as root disease, bark beetles, canker, or decay fungi. Any combination of these factors results in triggering an oak decline.

Returning a prescribed fire rotation mimicking historic (prior to 1920) fire return intervals following thinning/regeneration harvest would maintain open forest conditions with reduced inter-tree competition. The thinning of pine stands is also important in preventing disease attacks from southern pine beetles. These beetles have been spreading across the south in recent years due to the increasingly hot summers and mild winters. Infestations are now

common in areas where the beetle was once relatively unknown. South Carolina, North Carolina, and Kentucky have had tremendous outbreaks within the last five years. Shortleaf pine has been almost completely wiped out on the Daniel Boone National Forest in Kentucky. Currently, Mississippi is in the midst of a significant outbreak. To date, only small infestations have been observed on the Ozark-St. Francis National Forests (on the Mt. Magazine Ranger District), yet southern pine beetles are common to the Ouachita Mountains and southern Arkansas. Once insect infestations start, it is too late to effectively treat large areas and many acres of trees die rapidly. Prevention is the control method of choice by thinning stands to reduce inter-tree competition and relieve moisture stress. By keeping the trees healthy, beetles are expelled from the trees and never reach epidemic proportions.

Watershed integrity is sustained by mimicking the natural vegetation occurrences. This is done through stand manipulation via timber & wildlife management and prescribed fire.

Improve Wildlife Habitat and Benefit Disturbance-Dependent Species through Establishment of Early Seral Habitat

The Forests provide a wide variety of habitats that support a diversity of wildlife species. One of the two most important is the early successional habitat (0-10 years old). Reestablishment of young forests ensures sustainability of that forest type for another cycle.

For the Forests, the amount of early-successional forest habitat increased slightly from 1986 to 1991 to a total of approximately 1.0% forest-wide. From 1991 to 2001, early-successional forest habitat declined forest-wide to approximately 0.2%. The amount of early-successional habitat on the Forests is tied very closely to the amount of regeneration harvests the Forests conduct in a given year. This type of harvesting has declined over the years and this has driven the decline in early-successional habitat.

Hunter (2001) identified species of disturbance-dependent birds which are declining in the central hardwoods area. Forty-three of these species potentially occur within the analysis area. Of these, the United States Fish and Wildlife Service (USDI, 2002) identified seven of these species as Bird Species of Conservation Concern that are declining in the Central Hardwoods Bird Conservation Region (BCR) and are disturbance-dependent species. These 43 species found within the analysis area would benefit from vegetation treatments due to their reliance upon disturbance-associated habitats (Hunter, et al., 2001).

The Need to Reduce Off Highway Vehicle (OHV) Conflicts with Other Resource Values

Unauthorized OHV use in the project area (occurring off designated roads) is causing resource damage and conflicts with other resource uses. Closing and decommissioning roads in the project area will greatly reduce the negative impacts created from unauthorized OHV use and improve watershed integrity. The Forests' OHV policy designates specific routes on which it is authorized to ride on National Forest roads. Currently, the District is evaluating other routes that may be suitable for future OHV designation. This will be analyzed through separate National Environmental Policy Act (NEPA) documents.

The Need to Improve Forest Visitor Safety

Red oak borer-caused mortality and associated oak decline have increased the potential for falling trees/limbs to injure forest visitors. Additionally, ice storms within the last several years have created snags, broken tree tops, etc. which pose a threat to visitor safety. Thinning forest stands near recreation areas, as well as implementing associated silvicultural treatments and prescribed fire, will reduce potential hazards and improve visitor safety.

The Need to Provide Wood Products

Meeting the needs of improving wildlife habitat and promoting sustainable ecosystems will provide timber products as a by-product to the public over the next few years. General guidance in the Forest Plan directs the Forest Service to protect and improve renewable resource quality while maximizing net public benefits. Specific direction contained in the Forest Plan guides the Forest Service to "Provide a non-declining yield of forest products consistent with land capability, sustainability, protection needs and other resource values." (Forest Plan, pg. 2-27)

The Proposed Action

Ultimately, thinning and harvesting forest stands is needed to promote vigor of the remaining trees. Prescribed burning and herbicide/hand tool treatments would follow thinning of pine to stimulate plant communities beneficial to wildlife. Timber products in the form of sawlogs, small roundwood, and firewood would be generated by these actions in the near term, as well as providing for a future sustainable supply. Habitat diversity for animals and plants, including threatened, endangered, and/or sensitive species would be maintained or improved by the effects of the timber, wildlife, recreation, and access management. Also, fisheries habitat would be enhanced via riparian improvements. A decrease in wildfire risk by prescribed burning and mechanical fuels reduction would also occur, as well as closing roads no longer needed for land management. This project would maintain or improve the plant and animal diversity to meet overall multiple-use objectives as described in the Forest Plan.

The Proposed Action aims to restore forest ecosystem health and sustainable forest conditions in an area which has been affected by oak decline and exclusion of fire. Vegetative and wildlife diversity would be increased, fuels accumulations would be reduced, forest products would be produced, and watershed quality and dispersed recreation opportunities and quality would be improved in the area.

The Forest Service would solicit cooperation with private landowners who are interested in prescribed burn treatments on private lands surrounded by, or adjacent to, federal land in areas where it would improve Forest Service burns.

The Proposed Action would meet the purpose and need, and includes several vegetation/habitat management actions. The following activities would be implemented:

Timber

- Regeneration Harvest (includes shelterwood and seed tree) of pine and hardwood on approximately 1,400 acres in 59 stands.
- Pine and Hardwood Thinning on approximately 2,300 acres in 92 stands.
- Pine Pre-Commercial Thinning (PCT) on approximately 40 acres in 1 stand.
- Pine and Hardwood Release on approximately 110 acres in 7 stands.
- Shortleaf Pine Restoration on approximately 150 acres in 6 stands.
- Pine Heavy Site Preparation on approximately 60 acres in 2 stands.
- Hardwood Overstory Removal on approximately 80 acres in 3 stands.
- Oak Woodland Management on approximately 137 acres in 6 stands.
- Riparian Hardwood Restoration on approximately 90 acres in 2 stands.
- Timber Stand Improvement (TSI) of pine and hardwood on approximately 630 acres in 30 stands.

Wildlife

- Create/Improve Wildlife Openings on approximately 110 acres.
- Construct 8 Wildlife Ponds approximately ¼ acre each.
- Install 40 gates at the entrances of Wildlife Openings.
- Place Stream Habitat Improvement or Large Wood Debris (LWD) on approximately 20 miles of streams.

Fire

- Hazardous fuel reduction on 16,407 acres of public land and as much as 7,273 acres of private land (with landowner agreement).

Roadwork

- Road maintenance of up to 50 miles, road reconstruction of up to 3 miles, decommissioning of approximately 20 miles and up to 5 miles of temporary road would occur.

Decision Framework

Given the purpose and need, the Responsible Official will review the Proposed Action and the No Action Alternative in order to make the following decisions:

Does the Proposed Action meet the purpose of this initiative; that is, to guide this project area toward the goals and desired future conditions set forth in the Forest Plan?

Does the Proposed Action meet the purpose of the initiative while producing the least adverse cumulative environmental effects?

Does the Proposed Action meet the six strategic goals of the Forest Service's 2005-2012 National Strategic Plan?

Does the Proposed Action address project specific issues from the public?

Public Involvement

The proposal has been listed in the Schedule of Proposed Actions starting in February 2019. It was provided to the public and other agencies for scoping comments through mail outs and the Forest Service website. The IDT sought comments from within the agency, public, adjacent landowners, other agencies, and Tribal governments. In total, 17 comments were received by the public during this period, with no unresolved issues identified. A summary of issues based on comments received during scoping and agency responses is available in the Young Mike Sherman project file. This Draft EA has an official 30-day comment period, and any comments received by the public during this comment period will be addressed accordingly.

All actions within the EA meet all conditions of the Forest Plan and amendments and other applicable state and federal laws and regulations.

Chapter 2 - Comparison of the Proposed Action and No Action Alternative

This chapter describes and compares the Proposed Action to the No Action Alternative considered for the Young Mike Sherman project. The Proposed Action was developed by the Pleasant Hill Interdisciplinary Team (IDT) following the Forest Plan. The IDT represents a range of resources across the Forest including recreation, timber, wildlife, soils, water, and heritage. The IDT considered the following elements when they developed the Proposed Action for this analysis:

1. The goals, objectives and desired future conditions for the project area as outlined in the Ozark-St. Francis National Forests Revised Land and Resource Management Plan (Forest Plan).
2. Comments received from the public, state, and other agencies during the scoping process.
3. The laws, regulations and policies that govern land management on National Forests.

Because there were no unresolved issues from the comments received during the scoping period, the No Action Alternative was the only other alternative developed for this EA.

No Action

Under the No Action Alternative, current management plans would continue to guide administration of the project area. Custodial administration would proceed; however, in-depth, substantive resource management would not be accomplished.

Proposed Action

Timber and Silviculture

***Note*:** Due to a grammatical error, the acres for the regeneration harvest of pine and hardwood which includes shelterwood and seedtree treatments have changed slightly from the original acres disclosed in the scoping letter. Also, the Oak Woodland acres have been reduced due to the error. The following vegetation management activities are the approximate acreages that would be treated for the Young Mike Sherman project.

Regeneration Harvest of Pine and Hardwood (Shelterwood or Seedtree) – up to 1,479 acres

Mature forest stands would be commercially harvested to begin the process of renewal. Much of the overstory would be removed to open the forest floor to new regeneration. Additional site preparation measures would consist of prescribed burning and herbicide/hand tool/mechanized work.

Thinning of Pine and Hardwood Stands – up to 2,300 acres

Thinning would increase growth of immature forest stands, reduce their susceptibility to insects and disease, and improve wildlife habitat. Prescribed burning and midstory

treatments using herbicide and/or hand tools may be utilized to further reduce competition and increase sunlight to developing regeneration.

Shortleaf Pine Restoration – up to 150 acres

This action entails the removal (commercial harvest) of planted, non-native loblolly pine being replaced by planting native shortleaf pine seedlings. After harvest, site preparation activities will be accomplished using hand tools/herbicide, and mechanical means. Unharvested residual loblolly pine trees could be cut, removed and/or girdled within and adjacent to treatment areas to eliminate seed dispersal. Over time, the shortleaf pine would replace the loblolly returning the stand to a native species.

Pine Heavy Site Preparation – up to 60 acres

This treatment includes a stand that is located within an acquired tract that has previously been cut-over. It is now a thick stand of hardwood brush and saplings where originally it was pine timber. Heavy equipment as well as herbicide and/or hand tools would be needed to return the stand to shortleaf pine vegetation. Then planting shortleaf pine seedlings could occur.

Hardwood Overstory Removal – up to 80 acres

Three hardwood stands have suffered from a significant wind event that has essentially stripped them of most of their standing overstory. Efforts should be made to restore these stands back to being fully stocked by removing the rest of the trees and planting back to oak. The site preparation measures mentioned above would need to be implemented to help assure stocking levels are attained.

Oak Woodland Management – up to 137 acres

This prescription emphasizes restoration and maintenance of a mosaic of open oak woodland that mimics historical conditions. The purpose is to provide habitat for associated plants and animals, some of which are rare and declining, and to create a setting for recreation that is visually appealing, rich in wildlife and not commonly encountered elsewhere. Where practicable, commercial harvest would be employed to maintain about 45-50 trees per acre. Where it is not practicable, fire, herbicide, and non-commercial thinning would be used to maintain density. Some more accessible areas would be offered as firewood products for local use.

Riparian Hardwood Restoration – up to 90 acres

This action entails the removal (commercial harvest) of off-site pine vegetation in a riparian zone and is to be replaced by hardwood through natural succession. Unharvested residual loblolly pine trees could be cut, removed and/or girdled within and adjacent to treatment areas to eliminate seed dispersal. No other after-harvest mechanical and hand tool treatment activities are planned. The hardwood brush and trees presently in the under and mid-story would naturally overtake the site as the pine overstory is removed in two to three stages.

Timber Stand Improvement (TSI) of Pine and Hardwood – up to 630 acres

This treatment would be performed on mostly immature sawtimber-sized trees. The forest stands have a dense midstory and understory of desirable/undesirable species. Removal of

the undesirable species would allow a regeneration harvest to be considered next entry. TSI work of undesirable species would include the use of hand tools, herbicides, mechanical applications, and power saws. Prescribed burning may follow this treatment to further control unwanted competitors of oak and pine.

Pine Pre-Commercial Thinning (PCT) – up to 40 acres

These young stands are overcrowded and need to be thinned out to allow the residual trees to expand and grow. Means to accomplish this would entail hand tools (power saws) and/or herbicides.

Pine & Hardwood Release – up to 110 acres

Young stands of desirable species are being suppressed by competing undesirable species. Hand tools, herbicide and power saws would be needed to remove the unwanted competition.

Wildlife & Fishery Habitat Improvement

Creating/Improving Wildlife Openings – up to 110 acres

This would include 67 new wildlife openings and 43 enlargements of existing wildlife openings. Wildlife openings would be constructed with either the use of a masticator and/or pushing stumps and debris with a dozer. Establishment of desired herbaceous species would occur using disking, liming, seeding, and fertilization or existing native herbaceous vegetation may suffice for wildlife habitat. Once constructed, these openings would be maintained. Maintenance would consist of the following actions:

Mowing would occur on a 1- to 2-year schedule. Disking, seeding native or non-invasive cool season forage plants, accompanied by application of fertilizer and lime would occur on a 2- to 3-year schedule (as needed).

Application of approved herbicides such as glyphosate, imazapic, imazapyr, triclopyr, or hexazinone would occur on a 2- to 3-year schedule if needed to reduce encroachment of wood species. All Forest-Wide Standards and herbicide labels/precautions would be followed in the use of herbicide.

These openings would disperse concentrations of animal species over a broader area and would meet goals outlined in the Forest Plan. Many animals need these forest openings to fulfill all or some of their habitat requirements during their life cycle. The Arkansas Game and Fish Commission, local volunteers, the National Wild Turkey Federation, and contractors would participate with the USDA Forest Service in wildlife opening maintenance.

Pond Construction – up to 8 new ponds

This would include new construction and reconstruction of 8 ponds approximately ¼ acre each. Some mastication of cut-over acquired land would occur as well as on some of the existing pond banks. Two existing ponds would be stocked with forage and sport fish.

Gate Installation – up to 40 gates

Gates would be installed on identified wildlife opening access roads. Roads designated as open to the public would not be closed. Roads which provide access to private developments would not be closed. Gates at wildlife openings improve wildlife habitat by reducing disturbance to wildlife from vehicles and provide better recreational experiences to Forest users by limiting areas to walk-in hunting/wildlife viewing only.

Prescribed Fire

All Forest Service land within the Young Mike Sherman project (16,407 acres) would potentially receive low-to-moderate intensity prescribed burns to reduce hazardous fuels and wildlife risk, improve wildlife habitat, and for silvicultural purposes. Special attention would be given to all pine stands in which only low-intensity burning would take place in order to promote pine regeneration.

The U.S. Forest Service and the Arkansas Forestry Commission would solicit cooperation with private landowners using the Stevens (state) and Wyden (federal) agreements, which allow the agencies to carry out prescribed fire treatments on private lands surrounded by or adjacent to public lands under federal management. If private land owners do not wish to participate in prescribed fire treatments, their lands would be excluded from the project.

The primary goals of the prescribed fire component of this project is to reduce fuel accumulation in order to better protect National Forest and adjacent private lands from wildfire, and to reintroduce fire as a disturbance factor into fire-adapted ecosystems.

Prescribed fire also promotes oak regeneration, maintains pine/hardwood stands in open conditions, increases herbaceous understory species density and diversity, maintains/restores glades, improves habitat conditions for fire-dependent special-status plants, increases soft-mass production, reduces potentially hazardous accumulations of fuels on the forest floor, and improves wildlife habitat conditions.

Smoke emission modeling would be completed as part of the project analysis and all information relating to emissions can be found in the project file. All prescribed burning would be conducted in compliance with Arkansas Department of Environmental Quality (ADEQ) voluntary smoke management guidelines. Additional information can be found in the project file.

Stream Habitat Improvement – up to 20 miles

Large Woody Debris (LWD) placement would occur in stream channels intended for fish habitat improvement. LWD consists of felling approximately 15-30 trees/mile ranging in size from 10-30 inches dbh and having the felled trees fall into the creek channel. This provides structure for fish, stabilizes banks, reduces velocity of water flow, and helps create pool habitat for fish.

Non-Native Invasive Species

The occurrences of tree of heaven and invasive tree species would be treated with herbicides under an existing EA and decision record (DN) completed for the main division of the Ozark-St. Francis National Forests (including the Pleasant Hill Ranger District) in 2019.

The proposed forest vegetation management actions by individual stand is located in the project file.

Roadwork

Reconstruction – up to 3 miles

Some existing roads could be reconstructed within the project area. These roads are situated on somewhat stable templates that display signs of age where spots of erosion are occurring and drainage crossings are crumbling. Reconstruction would help stabilize these roads, reduce erosion and deter sediment from reaching streams.

Decommissioning – up to 20 miles

Some existing roads are no longer needed for management and could be decommissioned within the project area. This entails restoring roads to a more natural state. Activities used to decommission a road would include but are not limited to the following: re-establishing former drainage patterns, stabilizing slopes, restoring vegetation, blocking the entrance to the road, installing water bars (earthen mounds), and removing culverts. Unnamed and unauthorized off-highway vehicle (OHV) trails present in the project area may be closed using debris, rocks, earthen mounds, or gates. A transportation analysis report is part of the project file.

Temporary Roads – up to 5 miles

Some temporary roads would be needed to access timber stands. These roads would be blocked, and then rehabilitated with seeding and/or natural re-vegetation. Temporary roads would not be intended to be included as part of the forest transportation system as they are managed for short-term projects or activities, followed by decommissioning after use.

Access

Adjacent landowners whose property blocks access to Federal land may be contacted by the Forest Service and asked to consider allowing entrance to these otherwise inaccessible areas for forest management and fire protection.

Off-Highway Vehicles

OHV use is currently restricted to Forest-designated routes across the District. High-use areas are managed within capacities in order to maintain the quality of experiences. Recreational OHV visitors are informed through the OSFNFs' Back Country Guide which can be found at the Pleasant Hill Ranger District Office, (or any other district office across the Forests) where designated routes are located, what types of vehicles are allowed, and what seasons the routes are open to public OHV riding.

Within the project area, approximately 15.6 miles of existing designated OHV routes currently exist. However, connectivity between designated routes is poor and after careful evaluation of the open Forest Service roads that are in good stable condition in the project area, the following routes are being proposed to be opened for OHV use:

- FS 1524 (beginning at intersection of FS 4401 and ending at intersection of FS 94401A. FS 94401A is currently open to OHVs).

- FS 4401 (beginning at the intersection of County Road JO-4141 and ending at intersection of FS 1524).

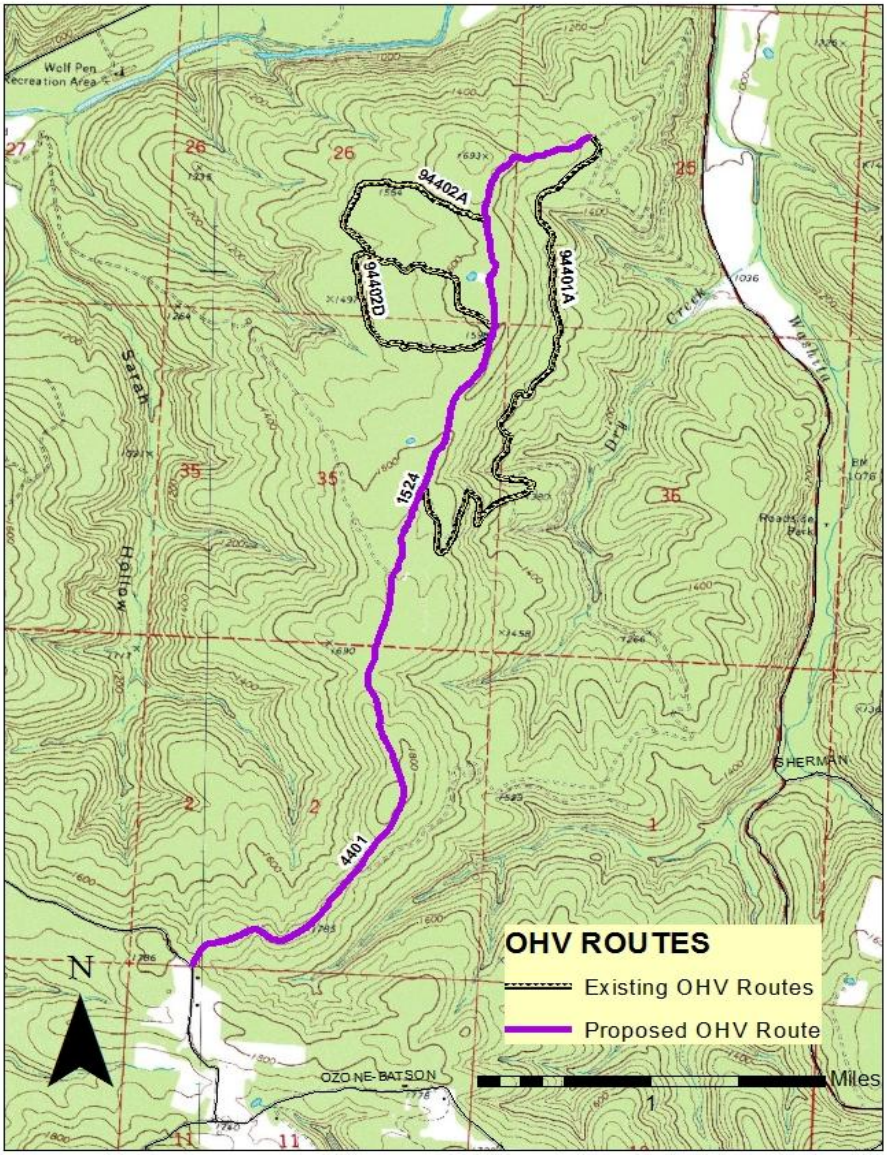

Figure 2. Proposed OHV Route.

FS 4401 is currently a maintenance level (ML) 3 road and would be reduced to ML 2 road and opened to both highway legal vehicles and OHVs. This would add approximately three miles to the OHV route system as well as better connectivity between open routes across the District. The effects are described in Chapter 3 of the EA.

Forest-Wide Standards and Mitigation Measures

Applicable Forest-Wide Standards of the Forest Plan and management area standards for the OSFNFs would apply to the Proposed Action.

Best Management Practices (BMP) Guidelines for Silviculture (Arkansas Forestry Commission) and selected Region 8 Timber Sale Clauses would also apply as standard mitigation measures for all actions.

Protection Measures for Historic Properties

The following measures only apply to cultural resource sites that are unevaluated, eligible for listing, or listed in the National Register of Historic Places.

HP1: Site Avoidance during Project Implementation

Avoidance of historic properties will require the protection from effects resulting from the undertaking. Mitigation measures include establishing clearly defined site boundaries and buffers around archeological sites where activities might result in an adverse effect and routing new roads, temporary roads, log landings, and skid trails away from historic properties. Buffers would be large enough to ensure that site integrity is not compromised.

HP2: Site Protection during Prescribed Burns

(1) ***Firelines*** - Historic properties located along existing non-maintained woods roads used as firelines would be protected by hand-clearing those sections that cross the sites. Although these roads are generally cleared of combustible debris using a small dozer, those sections crossing archeological sites would be cleared using leaf blowers and/or leaf rakes. There would be neither removal of soil, nor disturbance below the ground surface, during fireline preparation. Historic properties and features located along selected routes of mechanically-constructed firelines, where firelines do not currently exist, would be avoided by routing fireline construction around historic properties. Sites that lie along previously constructed dozer lines from past burns (where the firelines would be used again as firelines) would be protected during future burns by hand clearing sections of line that cross the site, rather than re-clearing using heavy equipment. Where these activities take place outside stands not already surveyed, cultural resource surveys and consultation would be completed prior to project implementation. Protection measures HP1, HP3, and HP4 would be applied prior to project implementation to protect historic properties.

(2) ***Burn Unit Interior*** - Combustible elements at historic properties in burn unit interiors would be protected from damage during burns by removing excessive fuels from the feature vicinity and, where applicable, by burning out around the feature prior to igniting the main burn and creating a fuel-free zone. Historic properties containing above ground, non-combustible cultural features and exposed artifacts would be

protected by removing fuel concentrations dense enough to significantly alter the characteristics of those cultural resources. For sites that have been previously burned or do not contain combustible elements or other above-ground features and exposed artifacts, no additional measures are proposed. Past research indicates that prescribed burning would not be sufficiently intense to cause adverse effects to these features.

(3) ***Post-Burn Monitoring*** - Post-burn monitoring may be conducted at selected sites to assess actual and indirect effects of the burns on the sites. These results would then be compared to the expected effects. State Historic Preservation Office (SHPO) consultation would be carried out with respect to necessary mitigation for any sites that suffer unexpected damage during the burn or from indirect effects following the burn.

HP3: Other Protection Measures

If it is not feasible or desirable to avoid a historic property that may be harmed by a project activity (HP1), then the following steps would be taken:

(1) In consultation with the Arkansas SHPO, the site(s) would be evaluated against National Register of Historic Places (NRHP) significance criteria (36 CFR 60.4) to determine eligibility for the NRHP. The evaluation may require subsurface site testing;

(2) In consultation with the Arkansas SHPO, relevant federally-recognized Tribes (and if required with the Advisory Council on Historic Preservation (ACHP), mitigation measures would be developed to minimize the adverse effects on the site, so that a finding of No Adverse Effect results; and

(3) The agreed-upon mitigation measures would be implemented prior to initiation of activities having the potential to affect the site.

HP4: Discovery of Cultural Resources during Project Implementation

Although cultural resources surveys were designed to locate all NRHP eligible archeological sites and components, these may go undetected for a variety of reasons. Should unrecorded cultural resources be discovered, activities that may be affecting that resource would halt immediately. The resource would be evaluated by an archaeologist, and consultation would be initiated with the SHPO, tribes and nations, and the ACHP to determine appropriate actions for protecting the resource and mitigating adverse effects. Project activities at that locale would not resume until the resource is adequately protected and until agreed-upon mitigation measures are implemented with SHPO approval.

Monitoring

All activities would be monitored to ensure mitigation measures are applied. Monitoring would be accomplished through harvest inspections conducted by certified timber sale administrators. Appropriate standards and guidelines would be implemented and maintained through active treatment to protect soil productivity, water quality and all other resources.

Chapter 3 – Environmental Consequences

This section summarizes the physical, biological, social, and economic environments of the affected project area and the potential changes to those environments due to implementation of the Proposed Action. It also presents the scientific and analytical basis for comparison of alternatives presented in Table 1.

Table 1. Comparison of Effects between the Alternatives

	No Action	Proposed Action
Herbicide	Herbicide use would only be used in areas under current NEPA.	Use of herbicide would help maintain early seral habitat and restore herbaceous species biodiversity in woodlands.
Large Woody Debris	Only natural recruitment would occur.	Large Woody Debris would provide structure for fish, stabilize banks, reduce velocity of water flow and help create pool habitat for fish.
Soil Resources	Natural erosion continues; unmaintained roads continue to erode.	Total expected temporary reduction of soil productivity would be 786 acres (4.8% of the harvested area).
Water Resources	Disrepaired roads contribute to stream sediment; 221% increase Concern level = low for Washita Creek-Mulberry River 154% increase Concern level = low for Murray Creek-Little Piney Creek	221% increase in sediment within the 6th level watershed; Concern level = low 160% increase in sediment within the 6th level watershed; Concern level = low
Road Access	Approximately 142 miles of roads in and around the project area.	50 miles of maintenance, 3 miles of reconstruction, 20 miles of road decommission, 5 miles temporary.
Vegetation Resources	As forest ages, it will become more vulnerable to outside elements; decrease in early-seral veg. = decrease in biodiversity.	Indirect/cumulative effects = increase in biodiversity, more benefits to oak regen. from Rx fire.
Wetlands &Riparian Areas	No change from current conditions.	With road decommissioning, maintenance, and reconstruction, water quality would improve.
Heritage Resources	Previously recorded sites will continue to deteriorate; no additional surveys would be conducted; no sites would be addressed for their National Register of Historic Places Eligibility.	If prescribed mitigation measures are properly implemented, project activities would not be expected to adversely affect cultural resources. Implementation of project activities would be expected to benefit cultural resources over time by increasing opportunities for monitoring sites.
Wildlife Resources	Increase in early successional habitat would not occur. Negative indirect impacts to wildlife species. No benefits from Rx burning.	Thinning would yield positive indirect impacts to wildlife, increased abundance of soft mast species, increased wildlife benefits from increased Rx fire, increased positive indirect impacts to hardmast producing species and herbaceous vegetation.
TES	Detrimental effects to species needing open habitats.	Benefit to species which require open and/or fire-dependent habitats; implementation of this proposed project may benefit Ozark big-eared bat, gray bat, Indiana bat, and Northern long-eared bat by providing habitat improvement.

	No Action	Proposed Action
Recreation	This alternative would not change the recreation use (OHV driving, camping, hiking, mountain bicycling, or fishing) in the project vicinity.	Short-term browning of vegetation from herbicide use and burning would occur. More visually-penetrating views into Forests and more occasions for wildlife viewing would occur. Approximately three miles would be added to the OHV route system.

1. Water Resources

Existing Conditions

The proposed project area falls within the Mulberry River (1111020106), Sixmile Creek (1111020203) and Cane Creek (1111020207) watersheds and at the smallest scale, the proposed project activities primarily occupy portions of three sub-watersheds as listed in the table below.

Table 2. Sub-Watersheds of Project

Watershed Number	Watershed Name	Total Acreage	Project Area Acreage Included
111102010605	Washita Creek-Mulberry River	29,406	6,381
111102020301	Upper Spadra Creek	23,291	11,496
111102020701	Murray Creek-Little Piney Creek	16,142	5,852

The primary streams that are found in the project area are: Dry Creek, Washita Creek, Spadra Creek, Rock Creek, Mikles Creek, and Murray Creek, along with several unnamed tributaries. The Mulberry River borders the northern edge of the Coon Hollow portion of the project area for approximately 1.5 miles through private property. The creeks and tributaries in the Coon Hollow area generally flow north and join the Mulberry River which is a designated Wild and Scenic River. Streams in the Youngs Point portion flow south and join Spadra Creek and streams in the Mikles Creek area flow north to Little Piney Creek. Much of the Coon Hollow portion of the project area is within the Arkansas Department of Health's Surface Water Protection Area (SWPA) for the Cass Job Corps intake on the Mulberry River. To a lesser extent, much of the Youngs Point portion is within the SWPA for Spadra Creek which is used by Clarksville Waterworks. The complete water resource report for this EA can be found in the project file.

Direct and Indirect Effects

No Action

No activities would be conducted for this project; therefore, no direct effects would occur. The current trends and conditions would be expected to continue. Indirect effects would continue to result from the existing conditions of the project area. The effects of vegetation on water yield within the watershed would continue through the evapotranspiration process.

Proposed Action

The main issue with respect to forest management activities and water quality is direct effects to water quality that may result from the proposed project. The activities which may cause direct and indirect effects are: vegetation management, silvicultural site preparation, road construction, reconstruction, and decommissioning, wildlife opening construction and reconstruction, pond construction and reconstruction, stream habitat improvement, and prescribed burning. The most likely effects from these activities are a short-term increase in sediment entering into surrounding water bodies, resulting mainly from road activities and minimal increases in water production as runoff.

The direct and indirect impacts from this project are not expected to contribute to degradation of the current water quality. With the application of the Arkansas Forestry Commission's BMPs for silviculture, current Forest Plan Standards, and other mitigation measures noted in this EA, the activities of the Proposed Action should not result in detrimental effects to the water resources or compliance with water quality regulations.

Cumulative Effects

The primary non-point source pollution concern from Forest Service activities is soil erosion, which can potentially result in increased sedimentation of aquatic habitats or threaten water quality as turbidity.

The cumulative effects analysis assumes that particular activities occur on public and private lands. The assumption is made that all the activities on public lands would occur during a one-year time frame, or as an instantaneous event. In practice, these activities are usually spread over several years, thus reducing the potential effects over the life of any resulting projects. Assumptions for the analysis are included in the determination of the potential risk indicator values; these values were determined on a smaller-scale, ecoregion basis, using community-based fish information. Different guilds within the fish communities were analyzed for predictive patterns of response to sediment loading. The most responsive patterns were used to set the risk level values. This allows for a determination of the 'worst case' scenario, providing a conservative understanding of effects to the water resources and designated use fisheries.

There are two risk values for every 6^{th} level watershed; the first separates the low and moderate concern levels and the second separates the moderate and high concern level. A low concern indicates a minimal risk to water quality, or no expected adverse effects to water resources or the designated uses. A moderate concern indicates that care should be taken designing and implementing the project to avoid adverse effects and that additional aquatic monitoring should occur prior to project implementation. Proper application of all Forest Plan Standards and Arkansas BMPs should be verified for implementation. Assuming these guidelines are correctly applied, this project would result in minimal risks to water quality; if these standards are not applied, then a greater risk to water quality results. A high concern signals that the water resources may be threatened by the current or future state of the watershed. Proposed activities should only be conducted with the application of appropriate Forest Plan Standards and BMPs. Short-term adverse effects to water resources may result from activities captured in the effects analysis, both on public as well as private lands.

The water resources cumulative effects analysis was completed based on the activities described in this document. All supporting material for this model has been included in the project planning files. The Youngs Point or central portion of the project area is divided into two watersheds in the model, which was developed prior to the U.S. Geological Survey's division of watersheds to the HUC 6 level. That portion of the project area is now combined, almost entirely, into the Upper Spadra Creek watershed that has approximately 50% land managed by the USFS whereas the eastern part of that area is only 7% USFS in the model. Because of the discrepancy, the quantitative analysis for that watershed is not shown. All activities in that area are typical, and nothing within the new watershed boundary indicates lower sediment yield for the other two watershed analysis areas are shown in Table 3. This analysis indicates that the watershed analysis areas currently have a low concern level. As a result of the Proposed Action, sediment increases slightly but the concern level remains low.

Table 3. Results of the Water Resources Cumulative Effects Analysis.

Percent increase of sediment above undisturbed conditions						
	Current		Future			
			No Action		Proposed	
6th level Watershed Analysis Area	% increase	Concern Level	% increase	Concern Level	% increase	Concern Level
111102010605 Washita Creek-Mulberry River	220	Low	221	Low	221	Low
111102020701 Murray Creek-Little Piney Creek	153	Low	154	Low	160	Low

The cumulative effects analysis indicates minimal risks to the water resource's current condition. Additionally, it should be possible to schedule these activities over time instead of instantaneously as predicted by the analysis, thus further reducing the possibility of acute effects. Using Forest Plan Standards and the use of Arkansas Silviculture BMPs, the activities scheduled for implementation would not pose additional risks to water quality or designated uses.

2. Soil Resources

Existing Conditions

The project area is located on the southern side of the Ozark Plateau in a heavily dissected section called the Boston Mountains. Most of the timber harvest would occur on a common stair-stepped landform, called "Bluff-Bench" topography that developed from the long-term weathering/erosion of sedimentary layers of different hardness, mainly shales and sandstones.

Soils in the proposed project area are well to moderately suited for the use of harvesting equipment. Forest-Wide Standard #85 states "on all soils dedicated to growing vegetation, the organic layers, topsoil, and root mat would be left intact over at least 85% of an activity area."

Direct and Indirect Effects

No Action

All the current conditions and trends of the project area would continue. The roads proposed for reconstruction, maintenance, and decommissioning would continue to erode. Some roads may continue to erode to the point that it would cause a safety concern for the public and would need to be closed until proper roadwork could be completed.

Proposed Action

Temporary roads, primary skid trails, and landings would be disked, seeded, and closed following harvesting to speed the recovery of the soil productivity. Road reconstruction would stabilize roads and prevent loss of productivity on soils adjacent to these roads and would reduce erosion and sedimentation. Road maintenance would also prevent the loss of productivity on soils adjacent to the roads by helping to control runoff. Less than 15% of an activity area can sustain a reduction in soil productivity, according to the Forest Plan standard. If more than 15% of the activity area sustains a reduction in soil productivity, mitigation measures must be implemented.

The prescribed burns would not be expected to negatively affect soil productivity because the burns would be planned to be low to moderate intensity. Past Forest BMPs of prescribed burned areas have been reviewed and there was a good regrowth of grasses and forbs. Fireline construction for the prescribed burns would be the biggest impact on soils due to displacement of the top soil and upper subsoil. Soil disturbance by fireline construction would be mitigated by pushing top soil and upper subsoil into the lines and smoothing and seeding them where necessary for erosion control.

Site preparation, timber stand improvement, pre-commercial thinning and pine release would have little impact on soils because hand tools and/or herbicide would be used which cause little to no soil disturbance.

Wildlife opening construction would cause some soil disturbance consisting mostly of displacement of topsoil and temporary increase in erosion. Smoothing, disking, seeding, and fertilizing would follow construction to reduce the impacts to soils.

Placement of woody material in streams could cause a slight increase in erosion at points along the streams where trees are felled into the stream, but these areas should revegetate within a few months and erosion would decline to natural levels.

Prescribed Burning Effects on Soils

The most important soil physical characteristic affected by fire is soil structure, because the organic matter component can be lost at relatively low temperatures. Organic matter helps to

hold soil particles together and, along with biofilms created by soil organisms, aggregates are formed which make up soil structure. The magnitude of change in soil physical properties depends on the temperature threshold of soil properties and the severity of the fire (DeBano and Neary, 2003). When the litter and duff are completely consumed by a high severity fire, the soil is bare and subject to raindrop splash and erosion. Moderate burns cause minor erosion because they expose soil on less than 20% of the area and recovery usually takes one year. Light burns cause no erosion because they expose almost no soil (Dissmeyer and Stump, 1978). Low-intensity burns have little, if any adverse effect on soil erosion even on relatively steep slopes (Brender and Cooper, 1968 Cushwa and others, 1971, Goebel and others, 1967 [cited in Stanturf and others 2002]). The remaining duff, root mat, surface gravel and stones protect the soil from erosion after the burn.

Cumulative Effects

The areas that are proposed for timber harvest have not been harvested for 10 years or more, and show little to no evidence of detrimental soil disturbance consisting of rutting, displacement of the top soil, compaction, or erosion. There are no known future activities in addition to the Proposed Action that would impact soils. Skid trails, log landings, and temporary roads would be smoothed, disked, and seeded to prevent erosion and to speed soil recovery. Soil disturbance that would potentially result from the Proposed Action are expected to be within the Forest Plan standard that requires that for soils dedicated to growing vegetation, the organic layers, topsoil, and root mat would be left intact over 85% of the project area.

3. Climate Change

The Proposed Action is a small-scale decision which will affect a portion of the 16,407 acres of Forest Service lands within the project area (which equates to approximately 1.4% of the total forested area on the Ozark-St. Francis National Forests). A complete and quantitative assessment of forest carbon stocks and the factors that influence carbon trends (management activities, disturbances, and environmental factors) for the Ozark-St. Francis National Forests is available in the project record (Dugan *et al.*, 2019). Based on the very limited portion of the Forests covered by this analysis, the Proposed Action is not likely to have a measurable effect to carbon storage on the Forests, or to global pools of greenhouse gases. In addition, climate change has not been raised as an issue of concern during scoping. Therefore, it has been dismissed from further analysis.

4. Herbicides

Herbicide Use Effects on Soil and Water

A brief summary of each of the herbicide's characteristics relating to soils can be found in the soils specialist report in the analysis file.

Where buffer strips are used or other mitigation techniques are employed, forestry herbicides generally do not pose a threat to water quality. Peak concentrations are usually low (< 100 mg/m3) and do not persist for long periods of time (< 6 mos.) (Neary and Michael, 1996).

Forestry use of herbicides poses a low pollution risk to groundwater because of its use pattern. Herbicide use in forestry is likely to occur only once or twice over rotations of 25 and 75 years. The greatest potential hazard to groundwater comes from stored concentrates, not operational application of diluted mixtures (Neary and Michael, 1996). Proper handling precautions during herbicide transport, storage, mixing, loading and clean-up are extremely important for preventing groundwater contamination (Neary and Michael, 1996).

From a review of literature surrounding herbicide application and use on forest lands, and monitoring conducted on the OSFNFs, it has been determined that the Proposed Action could potentially result in low levels of herbicide residues entering waterbodies within the project area. However, the levels found in the past and those anticipated for the future are expected to be very small, and not in excess of the levels of concern established by the Environmental Protection Agency (EPA). The OSFNFs utilizes standards for herbicide application which require buffers between treated vegetation and waterbodies, as well as standards to ensure that drift and direct application to water bodies do not occur. The Proposed Action includes the use of BMP practices and monitoring to ensure environmental quality is maintained.

When used for site preparation, herbicides are not broadcast but applied by direct injection or foliar spray. For these purposes, herbicide use is infrequent (1-2 times per 100 yrs) and direct application methods would minimize off-site movement. Forest-Wide Standards for herbicide application would be followed as well as appropriate BMPs designed to limit risk to water quality. Monitoring for herbicides used on the Forests was a continuous policy on the OSFNF for over 10 years. Results from this monitoring documented no significant concentrations of herbicides off-site from their application.

Herbicide Use Effects on Wildlife and Vegetation Management Benefits

Herbicide use is an important tool for benefiting oak/pine regeneration by providing for these species' presence in the ecosystem in the long term. Effects of herbicide toxicity data and dosage estimates for Triclopyr, Imazapic, Imazapyr, Glyphosate and Hexazinone selected for use in the action alternatives indicate that there is only a very low risk to wildlife, both from realistic and extreme exposures. Monitoring for herbicide concentrations following use has been a continuous policy of the OSFNFs. Monitoring results have not documented any significant on-site concentrations of herbicides or off-site movement. In a study regarding the use of herbicides in forestry applications (Michael, 2001), the author found that maximum pesticide concentrations observed in water have been much lower than the maximum levels which the EPA considers safe for consumption on a daily basis over a lifetime (Health Advisory Level-HAL). In some studies, the author reviewed maximum herbicide concentrations observed in ephemeral to first-order streams exceeded the lifetime HAL but found that they last only a few hours and the highest concentrations did not exceed EPA's 1-day HAL.

Even with the widespread use of pesticides in North America, those typically used in forestry vegetation management programs have not been identified in surface or ground water at sufficiently high concentrations to impair drinking water quality. Their rapid break-down by physical, chemical, and biological routes coupled with current use patterns preludes the development of significant water contamination problems unless they are applied directly to

water. In a variety of human health and environmental health scenarios (including a variety of wildlife scenarios) most Hazard Quotients (HQs) were projected to be below the Forests' maximum acceptable standard of one (1).

Forest Service Approved Herbicides That May Be Used

The approved herbicides that could be used for this project include:

- Glyphosate
- Hexazinone
- Imazapic
- Imazapyr
- Triclopyr Amine
- Triclopyr Ester

Worksheets for Human Health and Ecological Risk Assessments for the approved herbicides were used to determine HQs for workers, the general public and wildlife. All HQs for humans and terrestrial wildlife are less than one (1). HQs for many aquatic species are greater than one (1). Higher HQs (suggesting risk to these species) were modeled from accidental chemical spills into aquatic environments. Application of mitigation measures, adherence to Forest-Wide Standards for herbicide use, adherence to BMPs and adherence to application instructions on chemical labels will negate HQs greater than one (1) for aquatic species. A complete description of the approved herbicides is located in the project file for Young Mike Sherman EA.

On occasion, it is more effective for herbicides to be mixed together. For example, when trying to eradicate fescue, mixtures of Glyphosate and Imazapyr are recommended. Timber stands occasionally may require mixing Triclopyr and Imazapyr, or Glyphosate and Imazapyr to control red maple. Mixing these herbicides does not increase potential toxicity to humans or wildlife.

In order to improve the success of herbicide (foliar) applications, a surfactant (Cide-Kick, Cide-Kick II, JLB Oil Plus, JLB Oil, and Red River 90) may be mixed with the above-mentioned herbicides. Surfactants are compounds that lower the surface tension between two liquids or between a liquid and a solid. Surfactants used in chemical herbicide application are typically foaming agents, and dispersants. Surfactants used in chemical herbicide application are typically non-ionic surfactants. They are added to herbicide solutions to aid the chemical in adhering to the leaf's surface. Other modes of action of surfactants are breaking down the waxy cuticle of the leaf surface and penetration of the bud and bark area – allowing a more effective plant uptake of the herbicide. As per Forest Standard FW20, diesel oil is prohibited from use as a carrier or surfactant (USDA, 2005).

Active ingredients for surfactants used by the District are:

- Red River 90 – Alkylarpolyoxethylene, glycols, and free fatty acids
- Cide-Kick – D'limonene, related isomers, and emulsifiers (citrus oil)
- Cide-Kick II – D'limonene, related isomers, and emulsifiers (pine oil)
- JLB Oil Plus – vegetable and limonene oil

- JLB Oil – processed petroleum oil and limonene emulsifiers

D-limonene, also listed in ingredients as limonene oil, is derived from the rinds of citrus fruits and may be derived as a by-product of the forest industry (pine oil). Chemical composition of surfactants is innocuous. Surfactants when utilized at label rates and applied according to label instructions do not increase potential herbicide toxicity to humans or wildlife. Direct application of surfactants in concentrated form to water can be detrimental to aquatic life by disrupting transfer of oxygen across gill membranes.

Direct and Indirect Effects

No Action

Herbicide use would continue to be implemented throughout the District that have been approved by prior NEPA decisions. No additional effects would occur.

Proposed Action

Direct effects, occurring at time of application, to birds or large mammals are unlikely, since these species are likely to move from the area when project activities are implemented. Although direct effects to amphibians are more likely since contact with herbicide could be absorbed through the skin, amphibians are likely to be under logs, rocks or leaves, making direct contact (from spray) with chemicals less likely. Direct effects to other non-target plants occurring in these habitats could occur. Application methods, including directed application to target foliage or to freshly cut stumps/surfaces, would minimize the possibility of direct contamination to non-target species. The most plausible possible direct effects to humans would be to workers from continuing work in contaminated clothing. Proper handling and cleanliness of personal protective gear would mitigate this possibility. More implausible direct effects to the general public may occur in walking through recently treated (wet) vegetation in shorts and consuming contaminated fruit.

Adverse, indirect effects to all habitats treated with all chemicals are reduced given that applicators treat target plants only and field formulations contain diluted concentrations of chemical and that mitigation measures, BMPs, and Forest-Wide Standards would be used. Direct and indirect effects to humans, wildlife, and plants from chemical spills of all herbicides analyzed are minimized by following proper mixing and handling procedures, Forest-Wide Standards, and BMPs.

Cumulative Effects

There are likely to be few negative cumulative effects to humans, wildlife or plants over time as a result of implementing the Proposed Action. None of the herbicides would bio-accumulate or have lengthy half lives in the environment.

Related to cumulative impacts, the Ozark-St. Francis National Forests completed an EA that authorizes the Pleasant Hill Ranger District, among others, to utilize herbicide application throughout the landscape to target NNIS eradication. Use of herbicides to maintain early

seral habitat, restore herbaceous species biodiversity in woodlands, and to complete TSI treatments which benefit hard mast producing species would cumulatively benefit associated focal species.

Herbicide use would have beneficial effects on species using early-successional habitat by allowing creation and maintenance of wildlife openings, reduction of overstory and midstory canopy in wildlife stand improvement (WSI) areas, and promoting oak and pine regeneration through TSI cultural practices.

5. Forest Improvements (Road Access)

Existing Conditions

Approximately 142 miles of roads exist within and around the Young Mike Sherman project area. County roads comprise approximately 36 miles around and within the project area. These roads are regularly maintained by the county and Forest Service. Existing road locations shown on the map have been identified using Global Positioning System (GPS) equipment. Currently, the total road density in the project area is 3.8 miles of road/square mile. Road density under National Forest jurisdiction is 2.4 miles/square mile. A Travel Analysis Process (TAP) Report has been completed for each road in the project area and is kept in the process file at the Pleasant Hill District Office.

Direct and Indirect Effects

No Action

Primary arterial roads would be maintained at their current level. However, revenues from timber sales would not be generated to aid in road maintenance.

Several roads which are currently open would remain so and continue to be maintained on a regular basis with implementation of the "No Action" alternative. These roads are currently classed as Maintenance Level 2 or 3 (open roads) and are maintained for the public to reach private residences or allow for administrative access. However, forest interior roads classified as Maintenance Level 1 (closed roads) in need of maintenance or reconstruction would continue to erode and contribute to sedimentations of creeks and streams.

Proposed Action

Proposed management activities would require mostly maintenance with very little reconstruction and no new construction. Because this would be the second entry on most of the project area, most of the roads are in fairly good shape and wouldn't require as much reconstruction as routine maintenance. Some temporary roads would be needed but would be rehabilitated after the completion of the project. Also, some decommissioning would occur, but mostly on roads that are so overgrown that they are not recognizable on the ground.

Maintenance of up to 50 miles of open and closed roads may be performed in this project to get the roads in a suitable condition for hauling timber across them. Maintenance consists of

spot blading and graveling. County roads that would be used are regularly maintained by their respective counties. Special cooperative agreements are in place to assist in any required maintenance resulting from logging operations.

Reconstruction on up to three miles of roads may be needed because these roads or sections of roads are not maintained on a regular basis, thus requiring more work. Up-grading these roads by installing new culverts, wing-ditches, gravel, and rolling dips would stabilize them, thus minimizing sediment delivery to streams and drainages.

Up to 20 miles of existing roads no longer needed for management or access may be decommissioned. Decommissioning roads involves restoring these roads by allowing them to blend back in to the general forest area. Activities used to decommission a road could include, but are not limited to the following: re-establishing former drainage patterns, stablizing slopes, restoring vegetation, blocking the entrance to the road, installing water bars (earthen mounds), and removing culverts. These activities are designed to completely eliminate the roadbed by restoring natural conditions. Unnamed and illegal/unauthorized accessed OHV trails that are present in the project area may be closed using debris, rocks, earthen mounds, or gates.

Up to five miles of temporary roads may be needed to access timber stands. These roads would be blocked and rehabilitated with seeding and/or natural re-vegetation. Temporary roads are not intended to be included as part of the forest transportation system but rather managed for short-term projects or activities, and would be decomminssioned after use.

Gates would be installed on the short roads that access the new wildlife openings.

Cumulative Effects

The density of open roads will decrease under the Proposed Action with up to approximately 20 miles of Forest Service roads no longer needed for vegetation management.

Very few special-use permits exist on forest roads in the project area. However, it is likely that the Forest Service would receive additional special-use proposals in the future to access private forest stands for commercial timber removal.

The auditory and visibility impacts of road equipment should be relatively short-lived with very little effect on the environment. Re-closure and decommissioning of roads will reduce erosion and improve water quality in the project area. Based on the watershed analysis that evaluates road contributions to erosion and sediment in the Proposed Action area, rates of delivery are considered low risk.

6. Heritage and Cultural Resources

Consultation requirements outlined in Section 106 of the National Historic Preservation Act have been, or will be, met for this project prior to on the ground management activity.

The Young Mike Sherman project received past inventory for cultural resources. The report number, report name, (date) with State Historic Preservation Officer (SHPO) concurrence date are part of the Cultural Resource Report (CRR). The Young Mike Sherman project area includes Youngs Point, Mikles, and Coon Hollow project areas. To date, Mikles and Coon Hollow have been 100 percent surveyed. However, approximately only 30 percent of the Youngs Point has been surveyed. The completion of inventory enables projects to be planned to avoid impacts to known archeological sites. A resurvey of the area is not required by the National Historic Preservation Act.

1. Phased identification and evaluation [36 CFR 800.4(b)(2)], shall be used. Each year, a planned program of work would be developed and submitted to the Zoned Archeologist and Forest Heritage Program Manager to distribute to the SHPO and Tribes with interest in the project area. In areas with higher probabilities of containing sites, additional testing may be conducted as annual programs of work are determined to ensure that no additional sites would be impacted. This fieldwork would be conducted in accordance with established work standards under the supervision of the District or Forest Archeologist. Any additional consultation requirements shall be concluded and/or requirements of any formal agreements shall be met prior to implementation.

2. Known historic properties that are either eligible, potentially eligible or have undetermined eligibility for listing in the National Register of Historic Places would be marked and avoided prior to implementing management actions. Site protection forms shall be completed and approved by the Forest Heritage Program Manager prior to conducting work. Nonetheless, heritage properties and their components may be undetected for a variety of reasons. Therefore:
    - Should any action inadvertently uncover a previously unrecorded archaeological site or object(s), work would be halted, and the appropriate authorities would be notified.
    - Activities at that location would not resume until the resource is adequately protected and agreed-upon mitigations are implemented with State Historic Preservation Officer and Tribal Historic Preservation Officer consultation.

3. Additional heritage surveys may be conducted following prescribed burns in order to more fully inventory project areas.

Direct and Indirect Effects

No Action

Although no action would eliminate risk of inadvertent effects to cultural resources from planned activities, it would result in a marked increase in potential damage from unmanaged and unmonitored resources. Intrusive vegetation would not be controlled. Fuel load would accumulate, and the risk of uncontrolled fires, potentially damaging to cultural resources, would increase. The lack of federal presence in the area could be expected to increase the potential for damage to cultural resources from looting, vandalism, and other illegal or unmanaged use of the Forests

Proposed Action

Based on the information, no direct or indirect effects to heritage and cultural resources are anticipated as a result of the Young Mike Sherman project. Any known archeological sites would be avoided, and areas that have not been surveyed would be surveyed prior to on the ground work commencing under this project. Therefore, the project is unlikely to have any direct or indirect effects on heritage and cultural resources from implementation of this project.

Cumulative Effects

The greatest risks for archeological sites on the Forest come from unmanaged and unmonitored resources. Planned management and restoration activities benefit the cultural landscape by controlling intrusive vegetation, excessive accumulation of fuel load and risk of wildfire, and managing recreational use (i.e. dispersed campsites, OHV usage of roads and trails). The federal presence that results from the implementation of project activities would be expected to benefit cultural resources over time by increasing opportunities for the monitoring of sites for looting and vandalism, thus assisting with enforcement of federal protection laws.

7. Threatened, Endangered, Sensitive (TES) Species

Existing Conditions

Forest Service Manual (FSM) Section 2672.41 requires a biological evaluation (BE) and/or biological assessment (BA) for all Forest Service planned, funded, executed, or permitted programs and activities. The objectives of this BE/BA are to: 1) ensure that Forest Service actions do not contribute to loss of viability of any native or desired non-native species or contribute to trends toward federal listing, 2) comply with the requirements of the Endangered Species Act (ESA) so that federal agencies do not jeopardize or adversely modify critical habitat (as defined in ESA) of federally listed species, and 3) provide a process and standard to ensure that threatened, endangered, proposed, and sensitive species receive full consideration in the decision-making process.

Federally listed threatened and endangered species, species proposed for federal listing, and Southern Region sensitive species that may potentially be affected by this project were examined using the following existing available information:

- Reviewing the list of TES plant and animal species known or likely to occur on the OSFNFs, and their habitat preferences. This review included the US Fish and Wildlife Service's (USFWS) current list of endangered, threatened, and proposed species for Arkansas as of Sept. 15, 2017 (USDI, 2017), recent changes to the status of the Northern long-eared bat (USDI, 2015), the forest-wide list as of August 17, 2017 and the current Southern Region Sensitive Species list for the Forests, dated August 17, 2017 (list attached as Appendix A).

- Consulting element occurrence records for TES species as maintained by the Arkansas Natural Heritage Program (ARNHP).

- Consulting the US Fish and Wildlife Service ECOS/IPaC – Environmental Conservation Online System, to obtain the current list of Threatened and Endangered species for the project area.

- Reviewing sources listed in the reference portion of this report.

- Reviewing the results of field surveys that have been conducted in the area.

These resources and information were compiled to produce a site-specific BE for this project (Taylor, 2019). Online Section 7 consultation for the Northern long-eared Bat was completed on the ECOS/IPaC website and manual determination of effects for all other listed species in the project species was submitted to the USFWS for concurrence prior to issuance of the decision notice for the proposal. The complete BE is in the project file at the Pleasant Hill District Office.

Direct and Indirect Effects

No Action

Since management activities would not be implemented in the project area, no negative adverse effects would occur to populations of federally listed (T & E) or Regional Forester's sensitive species identified by ECOS/IPaC and Forest Service review. Current conditions would continue and the desired future conditions of the project area would not be met.

Proposed Action

The Proposed Action is designed to incorporate all Forest-Wide Standards and direction provided by the USFWS related to the conservation of listed bat species.

Gray Bat

There would be no direct risk to Gray bats from tree removal or other mechanical work because they dwell in caves and would not be present at the site during tree felling. Changes to foraging habitats may have short-term impacts and long-term benefits, but are discountable due to the small scale of the project relative to the vast foraging areas available on the Forest. All known hibernacula are located approximately 15-25 miles from the project area.

Indiana Bat
Mist netting has not captured Indiana bats within the project area which is located outside of any secondary Indiana bat zones. The forested landscape within this area provides potential summer roosting and foraging habitat for Indiana bats. Timber thinning would create foraging corridors and stand density more suitable to foraging.

Negative impacts to the Indiana bat could occur by unintentionally killing small groups of roosting bats by felling of trees harboring undetected roosts. Although there is only a slight risk, based on summer bat surveys, this project could result in the advertent loss of individual or small groups of Indiana bats, through loss of occupied roost trees.

Northern Long-eared Bat
Mist netting from 2009 to 2015 shows that 29% of all sites netted on the district had occupancy by this species. In recent years, the number of captures have declined, presumably due to white nose syndrome. However, the entire project area represents potential habitat for this species. This project could result in the inadvertent loss of individuals or small groups of Northern long-eared bats, via damage/removal of large-diameter trees occupied for roosting.

This project is likely to adversely affect the northern long-eared bat; however, there are no effects beyond those previously disclosed in the programmatic biological opinion on implementing the final 4(d) rule dated January 5, 2016, signed by Lynn Lewis. (50 CFR 17.40(o)). This project is consistent with the forest plan, description of the proposed action in the programmatic biological opinion, and activities that do not require special exemption from taking prohibitions applicable to the northern long-eared bat; therefore, the programmatic biological opinion satisfies the Forest Service's responsibility under ESA section 7(a)(2) relative to the northern long-eared bat for the project.

Ozark Big-eared Bat
The forested landscape comprising the project area is potential foraging habitat for this species. Negative impacts from the cutting of trees would not occur from implementation of this project as these bats are cave dwellers. Removal of trees associated with the proposed activities but may result in an increase in available foraging habitat for Ozark big-eared bats since they prefer the element of openness in forested stands. The proposed action would not affect any known Ozark big-eared bat hibernacula, maternity or roosting caves because none are known to occur in the project area.

Sensitive Species

For sensitive species including the longnose darter, Rafinesque's big-eared bat, Southeastern myotis, small-footed myotis, tri-colored bat, purple lilliput, *Lirceus bicuspicatus,* Monarch butterfly, Boston Mountain crayfish, William's crayfish, Nearctic paduniellan caddisfly, Ouachita leadplant, Bush's poppymallow, Ozark chinquapin, Southern lady's slipper, Newton's larkspur, Church's wildrye, small-headed pipewort, ovate-leaf catchfly, Ozark spiderwort, Nuttall's cornsalad, and Ozark cornsalad, direct negative impacts to individuals of these species may occur through implementation of the project. However, the project is not likely to cause a trend to the federal listing of these species under the ESA. Furthermore,

there would be no loss of population viability for these species due to implementation of this project.

Implementation of the Young Mike Sherman project would benefit sensitive species which require open (unshaded) and/or fire dependent habitats. These sensitive species include the Ouachita leadplant, Bush's poppymallow, Ozark chinquapin, Moore's larkspur, Church's wildrye, small-headed pipewort, ovate-leaf catchfly, Ozark spiderwort, Nuttall's cornsalad and Ozark cornsalad.

Because there were no other sensitive species or habitat for such species present, the project would have no impact on any other Southern Region sensitive species (Taylor, 2019).

Cumulative Effects

There are no foreseeable, additional management activities in the area (not associated with this project) that will directly or indirectly affect the TES described above or cause additive or synergistic adverse cumulative impacts in conjunction with the Proposed Action.

It is expected that there would be only minor sediment increases from implementing the Proposed Action. There should be no negative direct, indirect or cumulative effects to species from implementation of management activities associated with the Proposed Action.

8. Recreation

Off-Highway Vehicles

The project area is primarly used by the public for dispersed recreation opportunities. OHV riding has been occuring within the project area there are several designated routes. There are also unauthorized, man-made OHV trails common across the project area. As these trails are discovered within the project area, appropriate measures would be taken to close them. Additionally, some routes not currently open to OHVs may be evaluated within the project area and, depending on the condition of the roads and ability to provide better connectivity between routes, may be opened to OHVs to provide better route connectivity throughout the project area. Consequently, OHV routes currently open in the project area that may be deemed unsafe or show signs of resource damage could be closed until appropriate maintenance occurs. If it is a route that crosses private land for which the Forest Service does not have a legal easement, the route would be closed.

Equestrian Use

Equestrian use in the area is becoming more and more popular as many members of the public use existing roads and old road templates to ride horses. Horseback riding is currently allowed throughout the Forests and even behind closed gates. Horseback riders are allowed to go many places that OHVs are not. It appears that most of the equestrian use within the project area occurs in the Coon Hollow area, on a wide network of closed roads and old road

templates. The current areas in which most of the equestrian use is occurring would not be opened to OHV use to reduce user conflicts.

Direct and Indirect Effects

No Action

The outcome of no action would not move the management areas from its current condition to desired conditions described in the Forest Plan. Illegal OHV routes would continue to be a problem and better connectivity of routes would not be improved. Equestrian use would continue to occur throughout the project area.

Proposed Action

Prior to the designation of a NFS road for all motorized use, a qualified engineer would conduct an engineering analysis. The analysis involves a technical evaluation of the road and recommendations regarding all types of motorized use of the road including mitigation measures. Depending on the complexity of the situation, the analysis may range from documenting engineering judgement to an engineering report that addresses many factors related to motorized use.

By changing the designation of type of travel to include all motorized vehicles, traffic would increase. To provide for a safer route, proper signage would be installed at appropriate locations along each road. Signage will help inform drivers of possible encounters with OHV, all-terrain vehicle (ATV), and other passenger vehicles.

The equestrian use occurring mostly in the Coon Hollow project area would not change. Much of the current equestrian use occurs on road templates that are closed to motorized use. Some of these closed roads would be temporarily opened in order to carry out vegetation management activities, however would be reclosed after the project has been completed. None of the gated roads would be opened to OHV use but would remain open to equestrian use.

Cumulative Effects

Under the Proposed Action, dispersed recreation opportunities, such as hunting, would improve because of the vegetation and wildlife management activities proposed in this project. The Proposed Action would not change the non-consumptive recreation use such as equestrian use in the project area. Many of the unauthorized user-created OHV trails would be eliminated, thus improving the walk-in viewing of wildlife and hunting experience. The proposed OHV route would provide better connectivity to other open OHV routes which should lead to a reduction in resource damage from user created trails.

Maintaining a system of roads in the project area would allow outdoor enthusiasts to continue to enjoy the forest and allow hikers access to areas for dispersed camping and hunting. Vegetation management, silvicultural treatments, riparian enhancements, and wildlife habitat

improvements should increase numbers of both game and non-game species, so the recreational use in the form of wildlife viewing and hunting would likely improve.

Based on the analysis, the Proposed Action complies with the 2005 Forest Plan.

Chapter 4 – Consultation and Coordination

A complete list of the interested citizens and neighbors of the forest is in the Young Mike Sherman project file. The Forest Service consulted the following individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during the development of this Environmental Assessment:

Table 4. Lists of ID Team Members, Agencies, and Tribes Consulted

ID TEAM MEMBERS:

Name	**Position**	**Office**
Amanda Bataineh	Zoned Special Uses/Lands	Pleasant Hill Ranger District
Tara Smith	Zoned Forest Archaeologist	Pleasant Hill Ranger and Boston Mountain Ranger District
Tom Cravens	Forester (Retired)	Pleasant Hill Ranger District
Matt Pfeifler	Recreation/NEPA Coordinator	Pleasant Hill Ranger District
Travis Sweeney	Timber Management	Pleasant Hill Ranger District
Jason Engle	District Ranger	Pleasant Hill Ranger District
Jeff Henderson	Fire Management Officer	Pleasant Hill Ranger District
Greg Taylor	Wildlife Biologist	Pleasant Hill Ranger District
Matt Anderson	Fisheries Biologist	Ozark-St. Francis National Forests, Supervisor's Office, Russellville, AR
Rob Mendez	Soil Scientist	Ozark-St. Francis National Forests, Supervisor's Office, Russellville, AR
Rick Arnold	Engineering Technician	Pleasant Hill Ranger District
Rick Monk	Forest Hydrologist	Ozark-St. Francis National Forests, Supervisor's Office, Russellville, AR
Jeff Highfill	Timber Sales Administrator	Pleasant Hill Ranger District
Brian Barns	GIS	Ozark-St. Francis National Forests, Supervisor's Office, Russellville, AR

FEDERAL, STATE, AND LOCAL AGENCIES:

Name	**Position**	**Office**
Melvin Tobin	Fish & Wildlife Biologist	US Fish and Wildlife Service, Conway, Arkansas
Various Persons	Deputy State Historic Preservation Officer	Department of Arkansas Heritage
Ben Gentry	Engineering Technician	Ozark-St. Francis National Forests, Supervisor's Office, Russellville, AR

NATIVE AMERICAN TRIBES/NATIONS:

Name	**Location**
Caddo Indian Tribe of Oklahoma	Binger, Oklahoma
Cherokee Nation of Oklahoma	Tahlequah, Oklahoma
Osage Nation	Pawhuska, Oklahoma
Quapaw Tribe of Oklahoma	Quapaw, Oklahoma
Tunica-Biloxi Tribe of Louisiana	Marksville, Louisiana
United Keetoowah Band of Cherokee Indians	Tahlequah, Oklahoma
Jena Band of the Choctaw Indians	Jena, Louisiana

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